

a host unit connected between the remote processor and host computer which (1) causes screen data displayed on the host display device to appear also on the remote display device whereby at least a situation requiring a cold boot operation appears at the remote display device; and (2) upon receipt of a cold boot command from the remote processor, causes the host computer to initiate a cold boot operation of the host processor.

94. The apparatus of claim 93, wherein the screen data displayed on the host display device appears on the remote display device even after lock up of the host processor.

95. The apparatus of claim 93, wherein the host unit is connected between the host computer and a source of power for the host computer, and wherein upon receipt of the cold boot command the host unit temporarily interrupts power to the host processor.

96. The apparatus of claim 93; wherein the remote processor has a remote input device connected thereto, and wherein upon receipt of an input control command from the remote processor, the host unit causes the host processor to accept input from the remote input device and not from the host input device.

97. The apparatus of claim 93, wherein the host unit is connected between the host processor and at least one of the host input device and the host display device.

98. The apparatus of claim 96, wherein the remote processor has a remote input device connected thereto, and wherein the host unit forwards an input signal from one of the host input device and the remote input device to the host processor.

99. The apparatus of claim 93, comprising plural host computers and wherein the host unit comprises a switch controlled by the remote processor whereby the remote processor can select with which of the plural host computers the remote processor is to be connected for the transmission of input signals or display signals therebetween.

100. The apparatus of claim 93, comprising plural host computers and corresponding plural host units, the plural host units being connected in a daisy chain configuration, and wherein the plural host units comprise a switch controlled by the remote processor whereby the remote processor can select with which of the plural host computers the remote processor is to be connected for the transmission of input signals or display signals therebetween.

101. The apparatus of claim 93, wherein the remote processor is connected to the host unit by a standard telecommunications line.

102. A method of monitoring a computer system comprising: X

providing a host unit between a host computer and a remote processor; the host computer including a host processor, a host input device, and a host display device; the remote processor having a remote display device connected thereto;

using the host unit to cause screen data displayed on the host display device to appear also on the remote display device whereby at least a situation requiring a cold boot operation appears at the remote display device; and

receiving a cold boot command at the host unit from the remote processor and thereupon causing the host computer to initiate a cold boot operation of the host processor.

103. The method of claim 102, further comprising providing the screen data displayed on the host display device on the remote display device even after lock up of the host processor.

104. The method of claim 102, further comprising:

connecting the host unit between the host computer and a source of power for the host computer, and

upon receipt of the cold boot command at the host unit, temporarily interrupting power to the host processor.

105. The method of claim 102, wherein the remote processor has a remote input device connected thereto, and wherein the method further comprises receiving an input control command from the remote processor and thereupon the host unit causes the host processor to accept input from the remote input device and not from the host input device.

106. The method of claim 102, further comprising connecting the host unit between the host processor and at least one of the host input device and the host display device.

107. The method of claim 102, wherein the remote processor has a remote input device connected thereto, and wherein the method further comprises the host unit forwarding an input signal from one of the host input device and the remote input device to the host processor.

108. The method of claim 102, comprising plural host computers and wherein the host unit comprises a switch controlled by the remote processor, and wherein the method further comprises the remote processor selecting with which of the plural host computers the remote

processor is to be connected for the transmission of input signals or display signals therebetween.

109. The method of claim 102, comprising plural host computers and corresponding plural host units, and wherein the method further comprises connecting the plural host units in a daisy chain configuration wherein the plural host units comprise a switch controlled by the remote processor whereby the remote processor can select with which of the plural host computers the remote processor is to be connected for the transmission of input signals or display signals therebetween.

110. The method of claim 102, further comprising connecting the remote processor to the host unit by a standard telecommunications line.

111. A system for controlling a select one of plural host computers from a remote system having a remote processor, remote input device, and remote display device, each host computer having a host processor, a host input device, and a host display device, comprising:

plural host units connected together in a network configuration, each of the plural host units being connected to an associated one of the plural host computers, the remote processor also communicating with the network configuration;

wherein in response to a command entered from the remote input device, the remote processor connects via the network configuration to the selected one of the plural host computers whereby:

(1) screen data displayed on the host display device of the selected one of the plural host computers appears also on the remote display device, and

(2) input signals from the remote input device are forwarded to the selected one of the plural host computers for controlling the selected one of the plural host computers.

112. The apparatus of claim 111, wherein the selected one of the plural host computers is connected via its associated host unit to a source of power, and wherein upon receipt of a cold boot command from the remote processor the associated host unit temporarily interrupts power to the selected one of the plural host computers.

113. The apparatus of claim 111, wherein upon receipt of an input control command from the remote processor, the associated host unit causes the host processor of the selected one of the plural host computers to accept input from the remote input device and not from the host input device of the selected one of the plural host computers.

114. The apparatus of claim 111, wherein the associated host unit is connected between the host processor of the selected one of the plural host computers and at least one of the host input device and the host display device of the selected one of the plural host computers.

115. The apparatus of claim 111, wherein the associated host unit forwards an input signal from one of the host input device and the remote input device to the host processor of the selected one of the plural host computers.

116. The apparatus of claim 111, wherein the remote processor is connected to the network by a standard telecommunications line.

117. A method of controlling a select one of plural host computers from a remote processor; each host computer having a host processor, a host input device, and a host display

device; the remote processor having a remote input device and remote display device connected thereto comprising:

providing plural host units connected together in a network configuration, each of the plural host units being connected to an associated one of the plural host computers, the remote processor also communicating with the network configuration;

upon entry of a command from the remote input device, communicating signals from the remote processor through the network configuration to the selected one of the plural host computers whereby:

- (1) screen data displayed on the host display device of the selected one of the plural host computers appears also on the remote display device, and
- (2) input signals from the remote input device are forwarded to the selected one of the plural host computers for controlling the selected one of the plural host computers.

118. The method of claim 117, further comprising:

connecting the selected one of the plural host computers via its associated host unit to a source of power;

upon receipt of a cold boot command from the remote processor, the associated host unit temporarily interrupting power to the selected one of the plural host computers.

119. The method of claim 117, further comprising, upon receipt of an input control command from the remote processor, the associated host unit causing the host processor of the selected one of the plural host computers to accept input from the remote input device and not from the host input device of the selected one of the plural host computers.

120. The method of claim 117, further comprising connecting the associated host unit between the host processor of the selected one of the plural host computers and at least one of the host input device and the host display device of the selected one of the plural host computers.

121. The method of claim 117, further comprising the associated host unit forwarding an input signal from one of the host input device and the remote input device to the host processor of the selected one of the plural host computers.

122. The method of claim 117, further comprising connecting the remote processor to the network by a standard telecommunications line.

123. A computer monitoring system comprising: *

plural host computer sites, each host computer site having at least one host computer, the at least one host computer including a host processor, a host input device, and a host display device;

a remote processor situated at a remote site, the remote processor having a remote display device and a remote input device connected thereto;

a network linking the remote site and each of the plural host computer sites, the network facilitating a first connection between a first selected host computer at a first host computer site and the remote site, and during the first connection either:

(a) transmitting screen data from the host display device of the first selected host computer so that video appearing at the host display device thereof appears also on the remote display device, and

(b) transmitting input signals from the remote input device to the first selected host computer for controlling the first selected host computer;

an on-screen display process, execution of the on-screen display process at the remote site providing a pop-up screen on the remote display device, the pop-up comprising a menu identifying the host computers at the plural host computer sites, the pop-up screen at least overlaying the video appearing on the remote display device as a result of the first connection; whereupon operation of the remote input device in response to the menu of the pop-up screen switches the remote site from the first connection to a second connection between a second selected host computer and the remote site.

124. The apparatus of claim 123, wherein the second selected host computer is situated at a second host computer site.

125. The apparatus of claim 123, wherein at least one of the plural host computer sites comprises a network of host computers.

126. The apparatus of claim 125, wherein at least one of the plural host computer sites comprises a daisy chained configuration of host computers.

127. The apparatus of claim 125, wherein at least one of the plural host computer sites comprises a daisy chained configuration of host computers, the daisy chain configuration including a host unit associated with each of the host computers, wherein for each of the host computers the host unit is connected between the host computer and a source of power for the host computer, and wherein upon receipt of the cold boot command from the remote site the host unit temporarily interrupts power to the host processor of the host computer.

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128. The apparatus of claim 125, wherein at least one of the plural host computer sites comprises a daisy chained configuration of host computers, the daisy chain configuration including a host unit associated with each of the host computers, wherein for at least one of the host computers the host unit is connected between the host processor and at least one of the host input device and the host display device of the at least one of the host computers.

129. A method of monitoring a computer system wherein plural host computer sites are connected by a telecommunications network to a remote processor at a remote site, each of the plural host computer sites having at least one host computer, each host computer including a host processor, a host input device, and a host display device; the remote site having a remote processor situated thereat, the remote processor having a remote display device and a remote input device connected thereto; the method comprising:

(1) using a switching system of the telecommunications system to establish a first transmission between a first selected host computer at a first host computer site and the remote site, and during the first transmission either:

(a) transmitting screen data from the host display device of the first selected host computer so that video appearing at the host display device thereof appears also on the remote display device, and

(b) transmitting input signals from the remote input device to the first selected host computer for controlling the first selected host computer;

(2) executing an on-screen display process, execution of the on-screen display process providing a pop-up screen on the remote display device, the pop-up comprising a

menu identifying the host computers at the plural host computer sites, the pop-up screen at least overlaying the video appearing on the remote display device as a result of step (1)(a);

(3) upon operation of the remote input device in response to the menu of the pop-up screen, switching from the first transmission to a second transmission via the switching system, the second transmission being between a second selected host computer and the remote site.

130. The method of claim 129, wherein the second selected host computer is situated at a second host computer site.

131. The method of claim 129, further comprising providing at least one of the plural host computer sites with a network of host computers.

132. The method of claim 131, further comprising providing at least one of the plural host computer sites with a daisy chain configuration of host computers.

133. The method of claim 131, further comprising:

providing at least one of the plural host computer sites with a daisy chain configuration of host computers, the step of providing the daisy chain configuration comprising connecting a host unit between each of the host computers and a source of power therefor; and

upon receiving a cold boot command from the remote site with respect to a selected host computer, using the host unit to interrupt temporarily power to the host processor of the selected host computer.

134. The method of claim 131, providing at least one of the plural host computer sites with a daisy chain configuration of host computers, the step of providing the daisy chain configuration comprising connecting a host unit between the host processor and at least one of the host input device and the host display device of the at least one of the host computers.

A 135. A system for providing keyboard, video, and mouse signals to a selected one of a plurality of computers, including:

a keyboard, video and mouse signal switch;

an on-screen display processor providing a visual user interface responding to at least some of the keyboard signals for choosing the selected computer to be provided the keyboard, video and mouse signals, the switch being responsive to the on-screen display processor to establish a communications path to the selected computer for the keyboard, video and mouse signals.

136. A system for interfacing digitized keyboard signals with a computer processor generating analog video signals, comprising:

a remote access facility;

a non-dedicated serial channel; and

N.E. a computer access interface receiving from the remote access facility via the non-dedicated serial channel the digitized keyboard signals and transmitting to the remote access facility via the non-dedicated serial channel a digitized version of the analog video signals, wherein the non-dedicated serial channel is between the remote access facility and the computer access interface.

137. The system of claim 136, wherein the channel includes a network.

138. The system of claim 136, wherein the channel includes a wireline.

139. The system of claim 136, wherein the channel includes a modem-to-modem communication channel.

140. The system of claim 136, wherein the computer processor includes a computer keyboard port and a computer video device port, the computer access interface including a dedicated link to the keyboard port for transmitting the keyboard signals to the computer processor and including another dedicated link to the video device port for receiving the analog video signals from the computer processor.

141. The system of claim 136, wherein the computer access interface includes a keyboard, video and mouse signal switch.

142. The system of claim 141, wherein the computer processor is one of a plurality of computer processors communicating through the computer access interface through the keyboard, video and mouse signal switch.

143. The system of claim 142, wherein each of said plurality of computer processors includes a standard computer keyboard port and a standard computer video device port, each such port having respective dedicated links to the computer access interface and communicating via the respective dedicated links to the computer access interface.

144. The system of claim 136, wherein the computer access interface further receives computer keyboard commands from the computer processor and transmits the keyboard commands on the non-dedicated serial channel to the remote access facility.

145. The system of claim 136, wherein the computer access interface further receives computer mouse commands from the computer processor and transmits the mouse commands on the non-dedicated serial channel to the remote access facility.

146. The system of claim 136, wherein the computer access interface determines changes in the analog video signals and produces the digitized version of the analog video signals in accordance with the changes.

147. The system of claim 136, wherein the computer access interface analyzes characteristics of the analog video signals and produces the digitized version of the analog video signals in accordance with results of said analysis of the analog video signal characteristics.

148. The system of claim 147, wherein the analog video signals include RGB information including RGB components and wherein the computer access interface produces the digitized version of the analog video signals by applying a digitization process to each RGB component of the RGB information.

149. The system of claim 148, wherein the digitization process includes analyzing phase characteristics of each RGB component.

150. The system of claim 148, wherein the digitization process includes analyzing amplitude characteristics of each RGB component.

151. The system of claim 136, wherein the computer access interface includes hardware defining at least a local video port and wherein the computer access interface supports a video pass-thru mode for continuously applying the video signal to the local video port of the computer access interface.

152. The system of claim 136, wherein the computer processor receives AC power and the computer access interface receives a request to break the AC power and then coordinates a break in the AC power to the computer processor.

153. The system of claim 152, further including a power break component receiving the AC power and delivering the AC power to the computer processor, wherein the computer access interface delivers a power break command signal to the power break component upon receipt of the request to break.

154. The system of claim 136, wherein the computer access interface includes a page alert process generating an outgoing phone call to a predefined page number whenever a remote access user of the remote access facility fails to enter an appropriate access code.

155. The system of claim 136, wherein the computer access interface generates a predefined audio signal whenever a remote access user establishes communication with the computer access interface via the remote access facility.

156. The system of claim 136, wherein the computer access interface generates a predefined visual signal whenever a remote access user establishes communication with the computer access interface via the remote access facility.

157. A system for monitoring a host computer from a remote processor the host [★] computer including a host processor and a host display device port and the remote processor including a remote display device comprising:

a host unit connected between the remote processor and the host computer which (1) causes screen data output on the host display device port to appear also on the remote display device whereby at least a situation requiring a reset operation appears at the host unit and (2)

upon receipt of a reset command, causes the host unit to initiate a reset operation of the host computer.

158. The system of claim 157, wherein the host unit also automatically causes a reset operation whenever a connection between the remote processor and the host unit is terminated.

159. The system of claim 157, wherein the host unit receives communications from the remote processor via a telephone carrier signal and the host unit includes a carrier detect circuit and automatically causes the reset operation upon a determination made by the carrier detect circuit of the absence or presence of the carrier signal.

160. A method of monitoring a computer system comprising

providing a host unit between a host computer and a remote processor; the host computer including a host processor and a host display device port, the remote processor including a remote display device;

using the host unit to cause screen data output on the host display device port to appear also on the remote display device whereby at least a situation requiring a reset operation appears at the host unit; and

receiving a reset command at the host unit and thereupon causing the host unit to initiate a reset operation of the host computer.

161. The method of claim 160, wherein the host unit also automatically causes a reset operation whenever a connection between the remote processor and the host unit is terminated.

162. The method of claim 161, further including the steps of receiving communications from the remote processor at the host unit via a telephone carrier signal and wherein the host

N. unit includes a carrier detect circuit and automatically causes the reset operation upon a determination made by the carrier detect circuit of the absence or presence of the carrier signal.

163. A computer monitoring system comprising:

plural host computer sites, each host computer site having at least one host computer, the at least one host computer including a host processor, a host input device, and a host display device;

A remote processor situated at a remote site, the remote processor having a remote display device and a remote input device;

A telecommunications network linking the remote site and each of the plural host computer sites, the telecommunications network facilitating a first connection between a first selected host computer at a first host computer site and the remote site, and during the first connection either:

(a) transmitting screen data from the host display device of the first selected host computer so that video appearing at the host display device thereof appears also on the remote display device, or

(b) transmitting input signals from the remote input device to the first selected host computer for controlling the first selected host computer; and

an on-screen display process, execution of the on-screen display process at the remote site providing a pop-up screen on the remote display device, the pop-up screen comprising a menu identifying the host computers at the plural host computer sites, the pop-up screen at least overlaying video appearing on the remote display device as a result of the first connection; whereupon operation of the remote input device in response to the

menu of the pop-up screen switches connection from the first connection to a second connection via the telecommunications switching system between a second selected host computer and the remote site.

164. The apparatus as in claim 163, wherein the network is a telecommunications network.

165. A user station, comprising:

- an analog video source generating analog video signals;
- an analog video port maintaining the analog video signals;
- a video display connected to the video port to retrieve from the port the analog video signals and to display the retrieved analog video signals;
- a video processor to receive, digitize and packetize the analog video signals into packeted digital video signals;
- a network connector to establish a logical digital data path from the user station to a remote station and to deliver the packeted digital video signals onto the established logical digital data path;
- a keyboard port for keyboard signals, the network connector also delivering keyboard signals from the remote user to the keyboard port via the established logical digital data path;
- a mouse port for mouse signals, the network connector also delivering mouse signals from the remote user to the mouse port via the established logical digital data path; and

a processor to retrieve the keyboard and mouse signals from the remote user and to instruct the analog video source to generate new analog video signals based on the retrieved keyboard and mouse signals.

166. A user station as in claim 165 wherein the network connector includes a modem.

167. A user station as in claim 165 wherein the network connector includes a router to read addresses on the packeted digital video signals and route the packeted digital video signals along the established logical digital data path based on the addresses.

168. A computer connection system, comprising:

a plurality of user computers, each having:

a video port exhibiting analog video signals;

a video display receiving the analog video signals from the video port and displaying the analog video signals;

a video processor to receive, digitize and packetize the analog video signals into packeted digital video signals; and

a general processor to continually create new analog video signals for the video port;

a remote computer, having:

a data entry device port to receive entry device data entered from a standard keyboard or mouse;

a video processor to receive, de-digitize and de-packetize the packeted digital video signals back into the analog video signals; and

a video display receiving the analog video signals and displaying the analog video signals; and

a network connector to establish a logical digital data path from at least one of the plurality of user computers to the remote computer and to deliver the packeted digital video signals onto the established logical digital data path.

169. A system for controlling a target computer from a remote workstation of the type that includes a keyboard, a mouse, and a monitor, comprising:

a host computer including a video memory and keyboard/mouse buffers;

a video digitizer coupled to the host computer that receives analog video signals from the target computer, samples the video signals, and stores the video signals in the video memory;

a keyboard/mouse interface that receives keyboard and mouse signals from the remote workstation and stores them in the keyboard/mouse buffers; and

the host computer operating a remote access and control program that transmits the contents of the video memory to the remote workstation and receives the contents of the keyboard/mouse buffers from the target computer, both over a communication link.

170. The system of claim 169, wherein the host computer receives the keyboard and mouse signals from the remote workstation, stores the received keyboard and mouse signals in the buffers and forwards the contents of the keyboard/mouse buffers to a keyboard and mouse input on the target computer.

171. The system of claim 169, further comprising a switch disposed between the host computer and one or more target computers.

172. The system of claim 169, wherein the communication link is a telephone line.

173. The system of claim 169, wherein the communication link is a logical data path.

174. The system of claim 169, wherein the communication link is a network.

175. The system of claim 169, wherein the video digitizer includes a phase lock loop that produces a clocking signal having a frequency substantially equal to the time at which pixel values are transmitted in the video signal and a gating counter that passes the clocking signal to an analog to digital converter that samples the video signal during an active video portion of the video signal.

176. The system of claim 169, wherein the video digitizer alternatively samples a single color video signal in a frame of video data and stores the samples in the video memory.

177. A video digitizer for receiving analog video signals at a plurality of resolutions and for storing the video signals in a video memory of a host computer comprising:

a synchronize detect circuit that detects vertical and horizontal synchronize signals from an analog video signal;

a microprocessor that determines a clocking rate at which the analog video signal should be sampled from the timing of the vertical and horizontal synchronize signals;

a clock signal generator that produces a clock signal at the clocking rate;

an analog to digital converter that is controlled by the clock signal to sample the analog video signal, and

a bus interface circuit that writes the samples of the analog video signal into the video memory of the host computer.

178. The video digitizer of claim 177, wherein the clock signal generator comprises:
a phase lock loop circuit that compares the phase of the horizontal synchronize signal
with the phase of a divided clocking signal;

NLS
a variable oscillator that produces the clocking signal that controls the analog to digital
converter, wherein the clocking signal has a frequency that is dependent on the difference in
phase between the horizontal synchronize signal and the divided clocking signal; and

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a programmable divider that receives the clocking signal produced by the variable
oscillator and produces the divided clocking signal that is fed to the phase lock loop circuit.

179. The video digitizer of claim 178, further comprising a gating circuit that receives
the clocking signal and passes the clocking signal to the analog to digital converter during an
active video portion of the analog video portion of the analog video signal.

180. The video digitizer of claim 178, further comprising a phase adjust circuit that
adjusts the phase of the clocking signal.

181. The video digitizer of claim 177, further comprising a selection circuit that
alternatively selects a red, green, and blue component on the analog video signal to be sampled
by the analog to digital converter.

182. The video digitizer of claim 177, wherein the analog to digital converter includes
separate analog to digital converters to sample the red, green, and blue components of the analog
video signal.

183. The video digitizer of claim 177, wherein the host computer operates a remote access and control program that transmits the contents of the video memory to a remote computer system.

184. A system for controlling a target computer from a host computer comprising:
a video digitizer that receives analog video signals from the target computer and stores the video signals in a video memory within the host computer for display on a monitor coupled to the host computer;

a set of keyboard and mouse buffers that store keyboard and mouse control signals from the target computer as well as keyboard and mouse data signals that are received from a keyboard and mouse coupled to the host computer; and

wherein the host computer transmits the contents of the set of keyboard and mouse buffers to the target computer in order to control the operation of the target computer.

185. The system of claim 184, wherein the host computer further comprises a communication device that transmits the contents of the video memory and the keyboard and mouse buffers to a remotely located computer and receives keyboard and mouse data signals from the remotely located computer for storage in the set of keyboard and mouse buffers so that the target computer can be controlled from the remotely located computer.

186. A system for interfacing keyboard signals with a selected computer processor generating video signals, comprising:

an on-screen display generator to create a menu for a monitor associated with the keyboard signals, said menu listing the selected computer processor among a plurality of other computer processors for selection by a user of the monitor;

N.S. a network access device to interface with a network including the plurality of computer processors and the selected computer processor;

A. a video interface to receive the video signals from the network via the network access device;

a keyboard interface to read the keyboard signals and to deliver the keyboard signals to the selected computer processor via the network and the network access device.

187. A system according to claim 186, also for interfacing mouse signals with the selected computer processor, further comprising:

a mouse interface to read the mouse signals and to deliver the mouse signals to the selected computer processor via from the network and the network access device.

188. A system according to claim 186, wherein:

the keyboard interface communicates with the selected computer processor through a keyboard port of the selected computer processor.

189. A system according to claim 187, wherein:

the mouse interface communicates with the selected computer processor through a mouse port of the selected computer processor.

ME 190. A system according to claim 188, further including:

an on-screen display generator to create a menu for a monitor associated with the keyboard signals, said menu listing the selected computer processor among a plurality of computer processors for selection by a user of the monitor.

191. A method of interfacing at least some computer input device signals with a selected computer processor generating video signals, comprising:

A displaying a menu of computer processors including the selected computer processor;

identifying the selected computer processor from the listing based on at least one of the

computer input device signals;

interfacing with a network including the selected computer processor;

receiving the video signals from the network;

reading the computer input device signals; and

delivering at least some of the computer input device signals to the selected computer processor via the network.

192. A method according to claim 191, wherein:

the computer input device signals are one or more from the group consisting of:

keyboard signals and mouse signals.

193. A system, comprising:

NE a hardware host unit coupled to a host computer different from the hardware host unit; and

a remote computer software utility, located at a remote site computer, comprising: